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(54) Title: BLOCK AND GRAFT COPOLYMERS AND METHODS RELATING THERETO

(57) Abstract

There is disclosed block and graft copolymers which, in one embodiment, contain both a temperature-sensitive polymer component and a pH-sensitive polymer component, and the use of such copolymers for topical drug delivery to a treatment area. The block and graft copolymers may be physically mixed with one or more drugs to form a copolymer-drug mixture. This mixture may be applied to the treatment as solid particles suspended in a pharmaceutically acceptable carrier, or as a liquid which gels upon contact with the treatment area. Upon contact with the treatment area, the pH-sensitive polymer component hydrates and swells, thereby causing release of the drug from the mixture. In addition, such hydration and swelling causes the pH-sensitive polymer component to adhere to the tissue of the treatment area, thus prolonging contact time. The temperature-sensitive polymer component resists hydration and swelling of the mixture, thereby imparting a sustained and controlled release of the drug to the treatment area. In another embodiment of this invention, bloc and graft copolymers, and hydrogels thereof, are disclosed having broad industrial applicability.

